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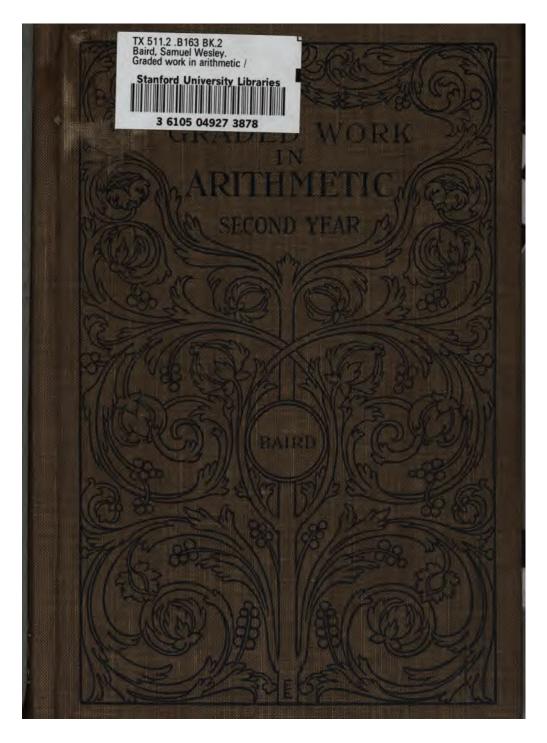
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GRADED WORK

IN

ARITHMETIC

S. W. BAIRD

PRINCIPAL FRANKLIN GRAMMAR SCHOOL, WILKESBARRE, PA.

SECOND YEAR

NUMBERS TO 100

NEW YORK:::CINCINNATI:::CHICAGO
AMERICAN BOOK COMPANY

Copyright 1807

AMERICAN BOOK COMPANY.

GRADED WORK IN ARITH. II.

W. P. 8

C

NOTE

THE Second Year continues the work of the First Year. Beginning with a thorough review of numbers up to 20, the book advances to numbers from 21 to 100.

Frequent drills are inserted to give the pupils a complete mastery of the combinations of these numbers.

Denominate numbers are introduced with pictures of measures in common use.

The problems are designed to relieve the monotony of the abstract number work. Alternations of oral and written work also afford variety.

Pictures and other features of the first book are continued, to render the book attractive.



If a boy has 1 cent in his right hand and 2 cents in his left hand, he has in both hands 1 cent and 2 cents, or 3 cents.

1 cent + 2 cents = --- cents.

If there are 3 apples on a plate and Mary eats one of them, there are left on the plate 3 apples less 1 apple, or 2 apples.

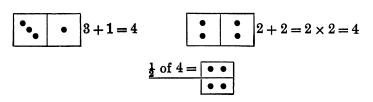
3 apples - 1 apple = --- apples.

If I have 3 apples and give 2 of them away, I have left 3 apples less 2 apples, or 1 apple.

3 apples -2 apples = apple.

WRITTEN WORK

1+1=	2+1=	3-2 =
2-1=	1+2=	$3 \div 2 =$
$2 \div 1 =$	3-1=	3÷1=

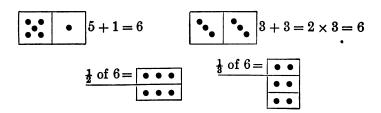


- If there are 3 pigs in 1 pen, and 1 pig in another pen, there are in both pens 3 pigs and 1 pig, or 4 pigs.
- 3 pigs + 1 pig = ---- pigs.
- If there are 2 birds in one cage, and 2 birds in another cage, there are in both cages 2 birds and 2 birds, or 4 birds.
- 2 birds + 2 birds = --- birds.
- 2 times 2 birds = --- birds.
- If a girl had 4 cents and spent 1 cent, she had left 4 cents less 1 cent, or 3 cents.
- 4 cents 1 cent = --- cents.
- If there are 4 birds on the fence and 2 birds fly away, there are still on the fence 4 birds less 2 birds, or 2 birds.
- 4 birds 2 birds = --- birds.
- If 4 cakes are divided equally between 2 boys, each will get $\frac{1}{2}$ of 4 cakes, or 2 cakes.

- If Anna found a nest with 4 eggs in it, and another nest with 1 egg in it, there were in both nests 4 eggs and 1 egg, or 5 eggs.
- If Anna took 2 eggs out of the first nest, there were left in the nest 4 eggs less 2 eggs, or 2 eggs.
- 4 eggs 2 eggs = ---- eggs.
- If Sallie has 5 plums and gives 2 of them to her brother, she has left 5 plums less 2 plums, or 3 plums.
- 5 plums 2 plums = ---- plums.

SLATE WORK

3+1=	2+2=	4+1=
4-1=	$2 \times 2 =$	3+2=
4-3=	4-2=	5 - 3 =
$4 \div 3 =$	$4 \div 2 =$	$5 \div 3 =$
2+1=	1+4=	3 - 3 =
2-2=	5-2 =	$5 \div 2 =$
2-1=	$4 \div 4 =$	$\frac{1}{2}$ of $4=$



A girl bought a spool of thread for 5 cents and a needle for 1 cent. How much did she pay for both?

She paid 5 cents + 1 cent, or 6 cents.

A man paid 4 cents for paper and 2 cents for pens. How much did he pay for both?

He paid 4 cents + 2 cents, or 6 cents.

Mary had 6 peaches and ate 3 of them. How many had she left?

SLATE WORK

$$5+1=$$
 $6 \div 2=$ $3 \times 2=$ $4+2=$ $6-2=$ $6 \div 4=$ $3+3=$ $6-3=$ $\frac{1}{2}$ of $6=$ $2 \times 3=$ $6-4=$ $\frac{1}{3}$ of $6=$ $6 \div 3=$ $6 \div 5=$

- John had 6 marbles and lost 3 of them. How many had he left?
- Willis had 4 pears and his mother gave him 2 more. How many pears had he then?
- He had 4 pears + 2 pears, or --- pears.
- A man paid 6 dollars (\$6) for a sheep, and sold it for 2 dollars (\$2) less than he paid for it. For how much did he sell it?
- He sold it for \$6 \$2, or \$—.
- At 2 cents each, how much will 3 cups cost?
- They will cost 3 times 2 cents, or —— cents.
- Mary has 6 roses and Lucy has $\frac{1}{2}$ as many.

How many roses has Lucy?

Lucy has ½ of 6 roses, or —— roses.

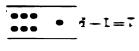
How many 2's are there in 6?

2 + 2 + 2 = 3 times 2.

How many 2's are there in 5?

There are two 2's in 5, and 1 over.

How many two-cent stamps can be bought for 6 cents? $6 \div 2 = 3$.



CEAL WOEK

There are 6 hens on a tree and 1 hen on another tree. How many hens are on both trees?

There are 6 hens plus 1 hen. or —— hens.

There are 5 white geese and 2 brown geese on the pond. How many geese are on the pond?

There are 5 geese + 2 geese, or --- geese.

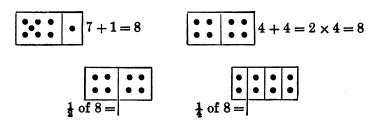
If I pay 7 cents for oranges and 3 cents for nuts, how much more do I pay for oranges than for nuts?

I pay 7 cents — 3 cents, or —— cents more.

A man had 7 cows and sold 5 of them. How many had he left?

He had left 7 cows - 5 cows, or - cows.

	SLATE	WORK	
6+1=	5+2=	4 + 3 =	4+2=
1 + 6 =	2+5=	3+4=	$6 \div 3 =$
7 - 6 =	7 - 2 =	7 - 3 =	6-4 =
7 - 1 =	7 - 5 =	7 - 4 =	$6 \div 2 =$
7 + 6 =	$7 \div 5 =$	$7 \div 4 =$	$2 \times 3 =$



If a top cost 7 cents and some cord 1 cent, how much did both cost?

Both cost 7 cents + 1 cent, or —— cents.

Mary gave 6 cakes to Frank, and 2 cakes to John. How many cakes did both get?

Both got 6 cakes + 2 cakes, or —— cakes.

Tom has 8 books and his sister has 3 books. How many more books has Tom than his sister?

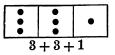
He has 8 books -3 books, or - books more.

Tom is 8 years old, and his sister is 4 years old. How many years older is Tom than his sister?

He is 8 years — 4 years, or —— years older. Helen is 8 years old. Her little brother is $\frac{1}{2}$ as old. How old is her little brother?

He is $\frac{1}{2}$ of 8 years, or —— years old.

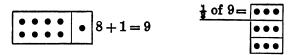
$$7+1 = 6+2 = 5+3 = 4+4 = 1+7 = 2+6 = 3+5 = 2 \times 4 = 8-1 = 8-2 = 8-3 = 8-4 = 8-7 = 8-6 = 8-5 = 8 \div 4 = 8 \div 7 = 8 \div 6 = 8 \div 5 = 8 \div 2 = 3+3+2 = 3+3+2 = 3+3+2 = 3+3+1 = 7-2-2 = 8-3-2 = 3+3+1 = 7-2-2 = 8 \div 3 = 2 \times 3, +1 = 7-2-1 = 2+2+2+2 = 7-3-3 = 7-3-2 = 4 \times 2 = 7 \div 3 = 7 \div 2 = 7$$



How many 3's are there in 7? In 7 there are two 3's, and 1 over.

In the same way show:

That in 8 there are two 3's, and 2 over. That in 7 there are three 2's, and 1 over. That in 7 there is one 4, and 3 over. That in 8 there is one 5, and 3 over. That in 5 there are two 2's, and 1 over. That in 7 there is one 5, and 2 over.



$$7+2=$$
 $6+3=$
 $5+4=$
 $3+3+3=$
 $2+7=$
 $3+6=$
 $4+5=$
 $3\times 3=$
 $9-2=$
 $9-3=$
 $9-4=$
 $9-3-3=$
 $9-7=$
 $9-6=$
 $9-5=$
 $9\div 3=$
 $9\div 7=$
 $9\div 6=$
 $9\div 5=$
 $1 \text{ of } 9=$

ORAL WORK

If I buy some beans for 6 cents and some peas for 3 cents, how much do I pay?

I pay 6 cents + 3 cents, or —— cents.

A boy earned 9 cents, and spent 4 cents for a pencil. How many cents had he left?

He had left 9 cents — 4 cents, or —— cents.

A man paid \$5 for some coal, and \$4 for wood. How much did he pay for both?

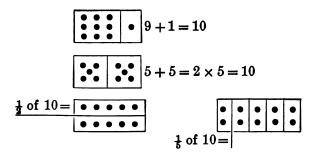
He paid \$5 + \$4, or \$——.

How much will 3 tops cost at 3 cents each?

They will cost 3×3 cents, or —— cents.

Tom has 9 little white rabbits, and Rob has \$\frac{1}{3}\$ as many. How many has Rob?

Rob has \$\frac{1}{3}\$ of 9 rabbits, or —— rabbits.



James and John went fishing. James caught 6 fish, and John caught 4. How many fish did both catch?

They caught 6 fish + 4 fish, or —— fish.

Fannie had 10 daisies, and gave Lillie 4 of them. How many had Fannie left?

At 5 cents each, how much will 2 pans cost? They will cost 2×5 cents, or —— cents.

How many rulers at 2 cents each can be bought for 10 cents?

There can be bought $10 \div 2$, or —— rulers.

A man earned \$10, and his son earned \(\frac{1}{2} \) as much. How much did the son earn?

He earned $\frac{1}{2}$ of \$10, or \$---.

Copy and finish:

$$5 \text{ and } 2 \text{ are }$$
 $9-4=$ 3 and $=$ 8 $3 \text{ and } 4 \text{ are }$ $7-5=$ 7 and $=$ 10 $6 \text{ and } 3 \text{ are }$ $6-2=$ 2 and $=$ 7 $2 \text{ and } 8 \text{ are }$ $10-3=$ 4 and $=$ 9 $10-7=$ 2 and $=$ 10

Add at sight:

3	4	5	6	5	3	3	4	2	6
5	3	2	3	4	<u>6</u>	3	4	7	4

Subtract at sight:

5	4	6	5	7	8	8	9	10	10
2	2	3	4	3	4	6	7	5	7

How many 2's are there in 6? in 8? in 10? How many 3's are there in 6? in 9?

How many 2's make 6? 8? 10?

What is $\frac{1}{2}$ of 4? 8? 10? 6? $\frac{1}{3}$ of 6? 9?

2 is ½ of what? 4 is ½ of what? 5 is ½ of what? 2 is ½ of what? 3 is ½ of what?

$$2 \text{ times } 2 = 3 \text{ times } 2 = 4 \text{ times } 2 = 5 \text{ times } 2 = 2 \text{ times } 3 = 3 \text{$$

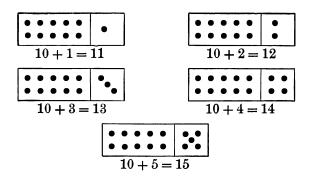
ORAL WORK

Name answers at sight:

Add at sight:

4	3	5	3	1	3	7	5	6
3	2	2	4	7	0	0	0	2
2	$\frac{1}{2}$	2	1	0	5	2	5	2
-			,	_	_	_	_	-

- A man paid \$8 for a coat and \$2 for a vest. How much did he pay for both?
- He paid \$8+\$2, or \$ ——.
- A farmer sold some wheat for \$7 and some corn for \$3. How much money did he get?
- He got \$7+\$3, or \$ ——.
- A man had 10 hogs and sold 7 of them. How many had he left?
- He had left 10 hogs-7 hogs, or —— hogs.
- If I receive 3 marbles from John, 2 from Harry, and 4 from Roy, how many do I get from all?
- I get 3 marbles+2 marbles+4 marbles, or —— marbles.
- If a cow gives 3 quarts of milk each day, in 3 days she will give 3 times 3 quarts, or —— quarts.
- Martha is 9 years old. Her little brother is $\frac{1}{3}$ as old. How old is her brother?
- There are 2 pints in a quart. How many quarts are there in 10 pints?
- $10 \div 2 = ---$



$$10+3=9+4=8+5=7+6=$$

$$13-3=13-4=13-5=13-6=$$

$$13-10=13-9=13-8=13-7=$$

$$13\div 10=13\div 9=13\div 8=13\div 7=$$

$$6+6+1=5+5+3=4+4+4+1=$$

$$2\times 6, +1=2\times 5, +3=3\times 4, +1=$$

$$13-6-6=13-5-5=13-4-4-4=$$

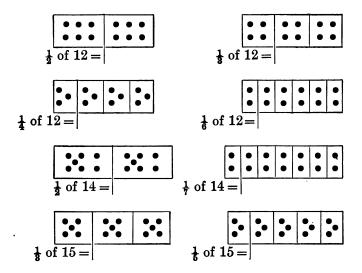
$$13\div 6=13\div 5=13\div 4=$$

- I paid \$9 for coal and \$2 for wood. How much did I pay for both?
- A farmer put 8 bushels of apples into one box and 3 bushels into another. How many bushels did he put into both boxes?
- A boy gathered 11 quarts of cherries and sold 5 quarts. How many had he left?
- There are 10 pints of cider in a can. If 2 pints more are put into the can, how many pints will then be in the can?
- Two boys together picked 12 quarts of berries.

 If each boy eats a quart, how many quarts
 will they have left?

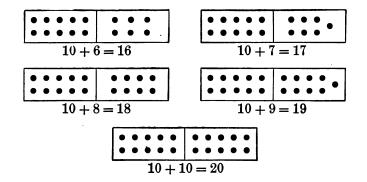
- A lady paid \$9 for a coat and \$4 for a hat. How much did she pay for both?
- I paid \$13 for a watch and \$4 less for a chain. How much did the chain cost me? There are 3 feet in 1 yard. How many yards are there in 12 feet?
- At 3 cents a pint, how many quarts of milk can be bought for 12 cents?
- How many 3's are there in 11? In 11 there are three 3's and 2 over.

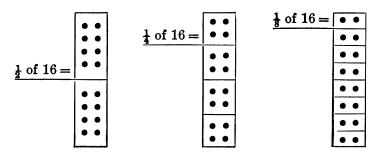
How many 3's are there in 13? 4's in 11?



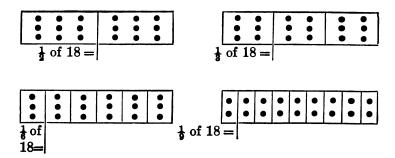
1 ten and one = el 1 ten and two = 1 ten and three = 1 ten and four = 1 ten and five =		10+1= $10+2=$ $10+3=$ $10+4=$ $10+5=$	11-1= $12-2=$ $13-3=$ $14-4=$ $15-5=$
$\frac{1}{3}$ of $12 = \frac{1}{7}$ of $\frac{1}{4}$ of $12 = \frac{1}{3}$ of	14 = 14 = 15 = 15 =	$12 \div 2 =$ $12 \div 3 =$ $12 \div 4 =$ $12 \div 6 =$	$14 \div 2 = 14 \div 7 = 15 \div 3 = 15 \div 5 =$
$2 \times 5, +1 =$ $2 \times 4, +3 =$ $3 \times 3, +2 =$ $5 \times 2, +1 =$	$2 \times 5, +$ $3 \times$ $4 \times$ $6 \times$	4 = 3 =	$2 \times 6, +1 =$ $2 \times 5, +3 =$ $3 \times 4, +1 =$ $4 \times 3, +1 =$
8 + 5 = 3 + 10 =	13-?= 13-5= 9+?= 12-7=	: :13	$13 \div 2 =$ $13 \div 4 =$ $13 \div 5 =$ $13 \div 6 =$
6+4-3= $7-2+6=$ $3+8-7=$ $5-2+4=$	$2 \times 5, -$ $3 \times 4, -$ $2 \times 6, -$ $3 \times 3, -$	· 6 = · 3 =	$12-?=7$ $13-?=10$ $12-?=5$ $12\div?=6$

- There are 8 cows in 1 field and 6 in another. How many cows are there in both fields?
- A lady bought 7 pounds of coffee and 8 pounds of tea. How many pounds did she buy?
- John worked 14 days in May and 5 days less in June. How many days did he work in June?
- At 5 cents each, how many melons can you buy for 15 cents?
- John caught 14 fish, and Benton caught ½ as many. How many did Benton catch?
- How much will 14 dozen eggs cost at a cent apiece?
- Miles bought a saddle for \$13 and a bridle for \$7 less. How much did he pay for the bridle?
- How many inches are there in $1\frac{1}{4}$ feet?
- How many months are there in $1\frac{1}{4}$ years?
- If 4 hats cost \$12, what is the cost of one hat?
- If a pound of honey costs 15 cents, how much will 4 of a pound cost?





- A farmer has 15 hens and buys 2 more. How many hens has he then?
- There are 17 pupils in a class. If 2 of them leave, how many will be left?
- Harry sold a calf for \$10 and a sheep for \$8. How much did he get for both?
- A man paid \$18 for a hat and a coat. If the hat cost \$4, what was the cost of the coat?
- There are 16 ounces in a pound. How many ounces are there in $\frac{1}{2}$ of a pound? in $\frac{1}{4}$ of a pound?
- At 4 cents a quart, how many quarts of cider can you buy for 16 cents?
- A miller bought 18 bushels of wheat and made 5 bushels of it into flour. How many bushels were left?



- If a yard of ribbon costs 18 cents, how much will ½ of a yard cost? ⅓ of a yard? ⅙ of a yard? ⅙ of a yard? ⅓ of a yard?
- How many apples are 3 times 6 apples?
 - How many apples will it take to give to 6 boys 3 apples apiece?
 - If 2 pounds of meat cost 18 cents, what is the cost of 1 pound?
 - If $\frac{1}{3}$ of a dozen eggs cost 6 cents, how much will 1 dozen cost?
 - There are 2 pints in 1 quart. How many quarts are there in 18 pints?
 - If 3 lemons are sold for 9 cents, how much will 6 lemons be sold for? 6 is how many times 3?

Show by dots: (See Lesson 24)

 $\frac{1}{2}$ of 20; $\frac{1}{4}$ of 20; $\frac{1}{6}$ of 20; $\frac{1}{10}$ of 20.

What is:

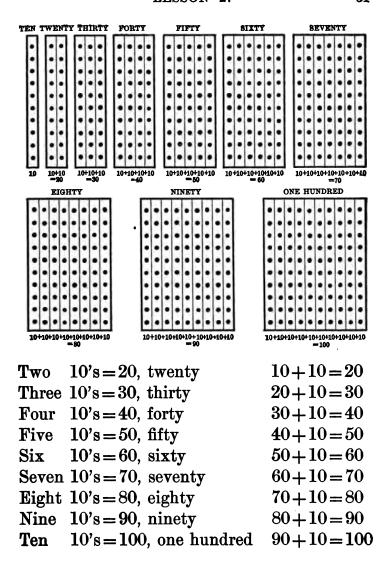
½ of 18? ⅓ of 18? ⅙ of 18? ⅙ of 18? ¼ of 16? ½ of 16? ⅙ of 16? ⅙ of 12? ⅙ of 20? ⅙ of 20? ⅙ of 20?

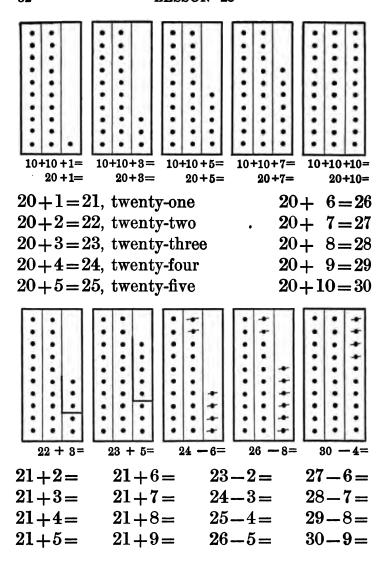
Show by dots: (See Lesson 8)

How many 3's there are in 16; in 17; in 19; in 20.

How many 5's there are in 16; in 17; in 18; in 19.

1 ten and six =
$$10+6=$$
 $16-6=$
1 ten and seven = $10+7=$ $17-7=$
1 ten and eight = $10+8=$ $18-8=$
1 ten and nine = $10+9=$ $19-9=$
1 ten and 1 ten = $10+10=$ $20-10=$
Two tens = 20 $2\times10=$ $20\div10=$
 $\frac{1}{2}$ of $16=\frac{1}{2}$ of $18=\frac{1}{2}$ of $18=\frac{1}{2}$ of $20=\frac{1}{2}$ of $20=\frac{$





GRAD. ARITH. II. -3

How many 1's make 10?

How many 10's make 20?

How many 10's make 30?

How many 10's make 60?

How many 10's make 90?

How many 10's make 40?

How many 10's make 80? 50?

How many 10's make 70? 100?

How many are 10 and 10? 20 and 10?

How many are 40 and 10? 30 and 10?

How many are 50 and 10? 70 and 10?

How many are 60 and 10? 90 and 10?

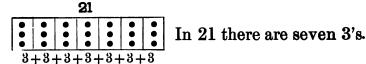
Two 10's and three 10's are how many 10's? Five 10's are how many ones?

Three 10's and four 10's are how many 10's? Seven 10's are how many ones?

Five 10's and three 10's are how many 10's? Eight 10's are how many ones?

Six 10's and four 10's are how many 10's? Ten 10's are how many ones?

What number has just four 10's in it? just seven 10's? just nine 10's?

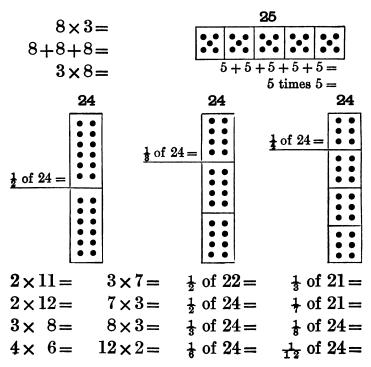


In the same way show:

That in 21 there are three 7's.

That in 22 there are eleven 2's.

That in 22 there are two 11's.



23 In 23 there are 7 threes, · and 2 over. $21 \div 4 = 5$, and 1 over.

$$21 \div 4 = 5$$
, and 1 over.

$$21 \div 6 = -$$
, and $-$ over.

$$23 \div 4 = -$$
, and $-$ over.

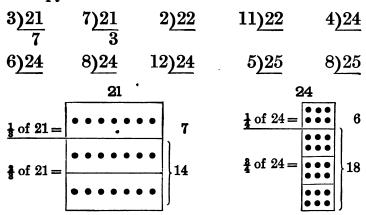
$$22 \div 11 = -$$

$$24 \div 8 = -$$
.

$$25 \div 5 = -$$
.

6)24 means the same as $24 \div 6$.

Copy and finish:



In the same way show $\frac{1}{7}$ of 21; $\frac{2}{7}$ of 21; $\frac{1}{3}$ of 24; $\frac{2}{3}$ of 24; $\frac{3}{5}$ of 20; $\frac{2}{3}$ of 18.

- A lady paid \$15 for a dress and \$8 for a shawl. How much did she pay for both?
- A miller made 23 barrels of flour and sold 8 of them. How many barrels had he left?
- If a barrel will hold 3 bushels of wheat, how many bushels will 8 barrels hold?
- There are 5 school days in a week. How many school days are there in 5 weeks?
- There are 7 days in 1 week. How many weeks are there in 21 days?
- There are 3 feet in 1 yard. How many yards are there in 24 feet?
- If a spool of silk costs 6 cents, how much will 4 spools cost?
- If a barrel of flour is worth \$8, what is \$\frac{1}{4}\$ of a barrel worth? What is \$\frac{3}{4}\$ of a barrel worth?
- If 4 yards of muslin cost 24 cents, how much will 1 yard cost? How much will 3 yards cost?
- There are 4 pecks in a bushel. How many bushels are there in 24 pecks?

Copy and add:

8	5	8	4	7	5	6	4	5
5	2	0	6	2	4	8	0	5
4	3	7	7	7	6	2	9	9
6	8	7	8	7	8	<u>6</u>	8	6

Divide:

$\frac{2)14}{7}$	<u>5)15</u>	6) 18	<u>5)20</u>	7)21
9)18	4)16	6)24	8)24	8)24

Six 10's less four 10's are how many 10's? how many 1's?

Seven 10's less three 10's are how many 10's? how many 1's?

Nine 10's less two 10's are how many 10's? how many 1's?

How many 1's are two 10's and 5?

How many 10's are two times four 10's?

90 is how many 10's?

Three times two 10's are how many 10's?

In an orchard there are seven rows of trees, and 10 trees in each row. How many trees are there in the orchard?

If a baker sells 5 ten-cent loaves of bread, how many cents does he get for them?

Minnie bought 5 yards of ribbon at 10 cents a yard. How much did she pay for the ribbon?

Twenty years is a *score* of years. How old is a man who is 4 score and 10 years old?

How many are three 10's and 30? four 10's and 20?

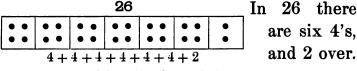
How many dimes are there in 60 cents?

$$26+1 = 21+6 = 27-1 = 27-6 = 25+2 = 20+7 = 27-2 = 27-7 = 24+3 = 19+8 = 27-3 = 27-8 = 23+4 = 18+9 = 27-4 = 27-9 = 22+5 = 17+10 = 27-5 = 27-10 = 27+1 = 22+6 = 28-1 = 28-6 = 26+2 = 21+7 = 28-2 = 28-7 = 25+3 = 20+8 = 28-3 = 28-8 = 24+4 = 19+9 = 28-4 = 28-9 = 23+5 = 18+10 = 28-5 = 29-1 = 29-6 = 27+2 = 22+7 = 29-2 = 29-7 = 26+3 = 21+8 = 29-3 = 29-8 = 25+4 = 20+9 = 29-4 = 29-9 = 24+5 = 19+10 = 29-5 = 29-10 = 29+1 = 24+6 = 30-1 = 30-6 = 28+2 = 23+7 = 30-2 = 30-7 = 27+3 = 22+8 = 30-3 = 30-8 = 26+4 = 21+9 = 30-4 = 30-9 = 25+5 = 20+10 = 30-5 = 30-10 = 27-10 = 27+3 = 20+10 = 30-5 = 30-10 = 27-10 = 27+5 = 20+10 = 30-5 = 30-10 = 27-10$$

28

Show by dots:

- 1. That $28 = 4 \times 7$.
- 2. That $27 = 9 \times 3$.
- 3. That $27 = 3 \times 9$.



 $26 \div 4 = 6$, and 2 over.

$$2\dot{6} \div 5 = 5$$
, and 1 over.

$$26 \div 6 =$$
 —, and — over.

$$26 \div 7 = -$$
, and $-$ over.

$$26 \div 8 = -$$
, and $-$ over.

$$27 \div 9 = -$$
.

$$27 \div 8 = -$$
, and $-$ over.

$$28 \div 7 = -$$
.

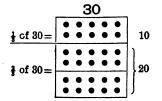
$$28 \div 9 = -$$
, and - over.

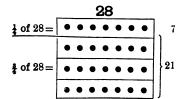
$$29 \div 7 = -$$
, and over $\stackrel{\checkmark}{-}$.

Show by dots $\frac{1}{3}$ of 27; $\frac{2}{3}$ of 27; $\frac{1}{7}$ of 28.

What is $\frac{1}{3}$ of 18? $\frac{1}{6}$ of 18?

7 dots are contained in 30 dots — times, and — remainder.





- How many inches are there in 2 feet? in $2\frac{1}{2}$ feet?
- How many yards are there in 27 feet? in 30 feet?
- 16 ounces make a pound. How many ounces are there in 1½ pounds?
- How many quarts are there in 1 gallon? in 5 gallons? in 71 gallons?
- How many feet are there in 2 yards? in $2\frac{1}{2}$ yards?
- How many pecks make a bushel? 6 bushels? 7½ bushels?
- Emma has 7 chickens, and Nell has 3 times as many. How many has Nell? How many have they both? How many more has Nell than Emma?
- What is $\frac{1}{3}$ of 30 oranges? $\frac{2}{3}$ of 30 lemons?
- At 28 cents a yard, how much will $\frac{1}{4}$ of a yard of silk ribbon cost? $\frac{3}{4}$ of a yard?
- At 12 cents a dozen, how much will 2½ dozen eggs cost?
- The cost of 3 gallons of oil is 27 cents.

 What is the cost of 1 gallon?

Count by 2's:

Beginning 2, 4, 6, and so on to 30.

Beginning 1, 3, 5, and so on to 29.

Count by 3's:

Beginning 3, 6, 9, and so on to 30.

Beginning 1, 4, 7, and so on to 28.

Beginning 2, 5, 8, and so on to 29.

Subtract by 2's:

Beginning 30, 28, 26, and so on to 0.

Beginning 29, 27, 25, and so on to 1.

Subtract by 3's:

Beginning 30, 27, 24, and so on to 0.

Beginning 28, 25, 22, and so on to 1.

Beginning 29, 26, 23, and so on to 2.

Add 4 to: 9; 6; 7; 11; 13; 15; 12; 18.

Add 5 to: 8; 12; 9; 17; 23; 25; 14; 16.

Add 3 to: 4; 6; 9; 18; 25; 23; 27.

Subtract 4 from: 13; 16; 19; 22; 26; 29;

27; **23**; **28**; **30**; **25**; **21**.

Subtract 5 from: 30; 28; 26; 29; 27; 24; 22; 25; 23; 18; 19; 20.

Subtract 3 from: 22; 24; 25; 29; 27.

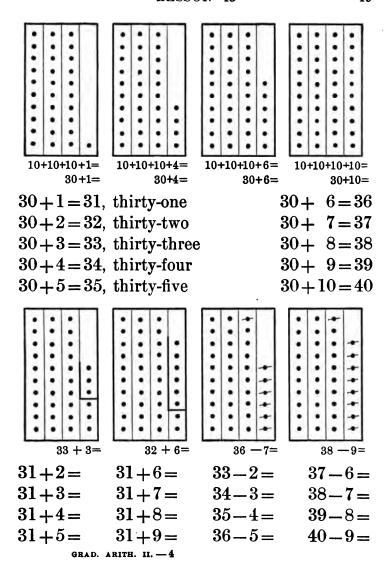
Add:

Multiply:

Divide:

Copy and finish:

$$25 \div 5, + 9 =$$
 $18 \div ? = 9$ $24 - ? = 14$
 $24 \div 4, + 7 =$ $21 \div ? = 7$ $13 - ? = 9$
 $24 \div 6, + 8 =$ $28 \div ? = 4$ $18 - ? = 10$
 $27 \div 9, +10 =$ $28 \div ? = 7$ $25 - ? = 15$
 $27 \div 3, + 9 =$ $30 \div ? = 3$ $27 - ? = 17$
 $30 \div 6, + 8 =$ $30 \div ? = 10$ $28 - ? = 18$

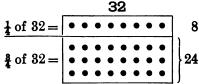


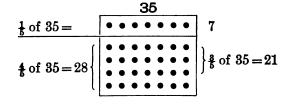
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- Mary has 5 dimes. How many cents has she?
- Johnson is 20 years old. In how many years will he be 40 years old?
- Four 10's less two 10's are how many 1's?
- How many days are there in 3 weeks? in 4 weeks?
- Count by 10's to 100, and back again from 100 to 0.
- Alice had 35 cents, but spent 10 of them for a doll. How many cents had she left?
- After spending 10 cents for a ball, Roy had 30 cents left. How much had he at first?
- The fence in front of my house is 30 feet long. How many yards long is it? ‡ of 30=
- Count by 5's to 30, and back again from 30 to 0.

$$11-9=$$
 $21-3=$ $19+8=$ $7 \times 3=$ $\frac{1}{8}$ of $27=$ $\frac{2}{8}$ of $27=$ $17-8=$ $12 \times 2=$ $\frac{1}{8}$ of $30=$ $7 \times 4=$ $25-8=$ $15+10=$

$$8+8+8=$$
 $4 \times 8=$
 $3 \times 11=$
 $7 \times 5=$
 $8 \times 4=$
 $11 \times 3=$
 $35-5=$
 $32-4=$
 $33-3=$
 $35-7=$
 $32 \div 4=$
 $33 \div 3=$
 $35 \div 5=$
 $32 \div 8=$
 $33 \div 11=$
 $35 \div 7=$





 $\frac{1}{3}$ of 33 =

$$\frac{1}{8}$$
 of $32 = \frac{5}{8}$ of $32 = \frac{1}{8}$

 $34 \div 10 = 3$, and 4 over.

$$35 \div 9 = ---$$
, and $---$ over.

$$35 \div 8 = ---$$
, and $---$ over.

$$35 \div 10 = ---$$
, and ---- over.

$$33 \div 4 =$$
 over.

$$33 \div 8 =$$
 and — over.

$$3 \times 11 = 11 \times 3 = 4 \times 7 = 5 \times 5 = 4 \times 8 = 3 \times 10 = 4 \times 6 = 8 \times 3 = 5 \times 7 = 3 \times 9 = 3 \times 7 = 10 \times 3 = 7 \times 5 = 5 \times 6 = 7 \times 4 = 3 \times 8 = 8 \times 4 = 9 \times 3 = 6 \times 4 = 6 \times 5 = 25 \div 5 = 28 \div 4 = 33 \div 3 = 33 \div 11 = 24 \div 8 = 24 \div 4 = 32 \div 4 = 30 \div 3 = 30 \div 10 = 21 \div 3 = 35 \div 5 = 27 \div 3 = 24 \div 3 = 28 \div 7 = 35 \div 7 = 30 \div 5 = 30 \div 6 = 24 \div 6 = 32 \div 8 = 27 \div 9 = 35 \div 6 = 32 \div 6 = 33 \div 7 = 33 \div 9 = 33 \div 9$$

- If George can walk 4 miles each hour, how far can he walk in 8 hours?
- There are 6 working days in a week. How many such days are there in 5 weeks?
- How many half dimes equal 35 cents?
- How many half dimes can I get in exchange for a quarter of a dollar (25 cents) and a dime?
- Robert earned 33 cents by selling papers. Howard earned only $\frac{1}{3}$ as much. How many cents did Howard earn?
- How many weeks are there in 28 days? in 35 days?
- Bertie had 35 cents, and gave his sister 10 cents. How many cents had Bertie left?
- A farmer raised 32 bushels of wheat, and sold all but 9 bushels. How many bushels did he sell?
- iller bought some corn for \$25, and some heat for \$9. How much did he pay for th? How much more did he pay for corn than for the wheat?

$$9+9+9+9=$$
 $36 \div 4=$ $4 \times 10=$ $4 \times 9=$ $36 \div 6=$ $10 \times 4=$ $9 \times 4=$ $36 \div 9=$ $40 \div 4=$ $6 \times 6=$ $36 \div 3=$ $40 \div 10=$

37

In 37 there are 7 fives, and 2 over. $37 \div 5 = 7$, and 2 over.

Show by dots:

That in 37 there are 4 nines, and 1 remainder. That in 39 there are 5 sevens, and 4 remainder.

That $\frac{1}{4}$ of 40 = 10. That $\frac{3}{4}$ of 40 = 30.

That $\frac{3}{4}$ of 36 = 27. That $\frac{1}{5}$ of 40 = 8.

 $36 \div 8 =$ and \longrightarrow remainder;

 $36 \div 10 = ---$, and --- remainder.

 $38 \div 9 =$ and ---- remainder;

 $38 \div 6 =$ and \longrightarrow remainder.

4 of 36 oranges are — oranges; 3 of 36 oranges are — oranges.

† of 40 peaches are — peaches.

- low much will 8 bars of soap cost at 5 cents a bar?
- here are 12 months in a year. How many months are there in 3 years? in § of a year?
- [ow many feet are there in 12 yards? in 12 yards and 4 feet?
- Iy room is 10 feet long, and 8 feet wide.

 How many feet of picture molding will it
 take to go around the room? 10+10+
 8+8=
- schoolroom is 36 feet long. How many yards long is it?
- pril has 30 days; May has 31 days. How many days is it from the 2d day of April to the end of the month? How many weeks?
- low many weeks is it from the 3d of May to the end of the month?
- I have 36 cents and spend $\frac{1}{4}$ of them, and 1 cent more, how many will I have left?
- low many months in 40 weeks?

Which is more, $\frac{1}{3}$ of 18, or $\frac{1}{2}$ of 12? $\frac{1}{4}$ of 36, or $\frac{1}{2}$ of 18?

 $\frac{1}{3}$ of 21 peas $=\frac{1}{2}$ of —— peas.

Add 5 to: 10; 15; 13; 18; 32; 24.

Add 6 to: 9; 8; 16; 24; 31; 22; 34.

Subtract 4 from: 22; 20; 18; 23; 17.

Subtract 8 from: 36; 32; 37; 28; 39; 26; 40; 24; 35.

If you divide 36 marbles equally among 4 boys, how many will each get?

At 8 cents a quart, how many quarts of berries can you buy for 40 cents?

How many:

İ

3's in 18?	7's in 28?	9's in 27?
8's in 40?	7's in 35?	5's in 40?
6's in 30?	8's in 32?	2's in 22?
$\frac{2}{3}$ of $18 =$	$\frac{2}{3}$ of $21 =$	$\frac{2}{3}$ of $24 =$

A carpenter earned \$36 in June and only as much in July. How much did he earn in July?

If 3 yards of silk cost \$12, how much will 1 yard cost? 10 yards?

$$3+3=$$
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 $39-4=$
 $37-10=$
 $1+3=$
 $33+5=$
 $37-4=$
 $39-10=$
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Write all the numbers from 4 to 40 that can be exactly divided by 4.

Write all the numbers from 3 to 36 that can be exactly divided by 3.

Write all the numbers from 5 to 40 that can be exactly divided by 5.

Multiply by 3 the following numbers:

7; 9; 4; 6; 8; 12; 10; 5; 11; 3; 2. Divide by 4:

20; 8; 12; 24; 32; 28; 36; 40; 16. Subtract 6 from:

16; 26; 18; 12; 32; 36; 38; 31; 29. Find $\frac{1}{2}$ of:

6; 8; 10; 14; 18; 12; 20; 16; 22; 24. Find # of:

16; 24; 8; 20; 32; 28; 40; 12; 36. Find # of:

12; 15; 9; 21; 24; 27; 30; 33; 36. Find # of:

5; 25; 35; 20; 30; 15; 10; 40. Find \(\frac{1}{8}\) of:

8; 16; 24; 32; 40.

LESSON 59	
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63

SLATE WORK

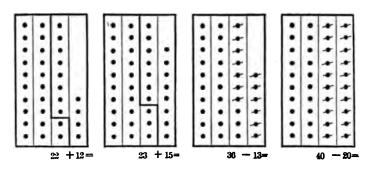
Add:

5	3	6	8	4	5	6
4	5	9	7	4	5	6
6	4	5	4	4	5	6
7	8	8	6	4	5	6
9	7	5	5	4	5	6
8	<u>6</u>	4	4	<u>4</u>	<u>5</u>	<u>6</u>

Divide:

Read at sight:

$$39-7=$$
 $42-6=$ $39-10=$ $37-7=$
 $40-2=$ $40-5=$ $37-10=$ $39-5=$
 $40-3=$ $39-8=$ $38-10=$ $35-6=$
 $39-4=$ $40-9=$ $37-8=$ $36-10=$
 $40-4=$ $40-8=$ $36-7=$ $33-6=$
 $32\div 8=$ $5\times 4=$ $6\times 3=$ $7\times 3=$
 $24\div 6=$ $3\times 9=$ $4\times 6=$ $6\times 5=$
 $36\div 9=$ $4\times 7=$ $3\times 11=$ $4\times 10=$
 $35\div 7=$ $8\times 5=$ $12\times 2=$ $5\times 7=$



Copy and add:

21	14	16	12	11	13	30	14	23
13	22	23	<u>15</u>	18	24	10	$\frac{25}{2}$	$\frac{12}{2}$
	21							
11	<u>14</u>	26	22	23	20	20	13	13

Copy and subtract:

26	24	37	2 8	23	29	36	38	27
<u>14</u>	<u>13</u>	25	<u>17</u>	<u>12</u>	<u>18</u>	<u>24</u>	<u>26</u>	11
35	39	40	40	40	30	30	39	38
21	27	<u>30</u>	20	10	20	<u>10</u>	23	24

Copy and finish:

- If I have 36 cents and spend $\frac{1}{3}$ of them, how many cents have I left?
- A farmer cut 23 loads of hay from one field and 16 loads from another field. How many loads did he cut from both fields?
- Sallie bought 4 yards of ribbon at 8 cents a yard. She gave the clerk 3 dimes and a half dime. How many cents should she get back?
- There are 24 hours in one day. If Johnny works 8 hours, and plays 5 hours during the day, how many hours has he left for sleep?
- A farmer's wife made 21 pounds of butter one week, and 18 pounds the next week. How many pounds did she make in both weeks?
- Willie earned 27 cents on Monday by selling papers. On Tuesday he earned only 12 cents. How much did he earn both days? How much more did he earn on Monday than on Tuesday?

GRAD. ARITH. II. -5

$$40+1=41$$
, forty-one $50+1=51$
 $40+2=42$, forty-two $50+2=52$
 $40+3=43$, forty-three $50+3=53$
 $40+4=44$, forty-four $50+4=54$
 $40+5=45$, forty-five $50+5=55$
 $40+6=46$, forty-six $50+6=56$
 $40+7=47$, forty-seven $50+7=57$
 $40+8=48$, forty-eight $50+8=58$
 $40+9=49$, forty-nine $50+9=59$
 $40+10=50$, fifty $50+10=60$

$$20+21 = 24+20 = 41-10 = 50-20 =$$
 $31+10 = 22+22 = 41-11 = 50-10 =$
 $30+11 = 24+24 = 42-21 = 43-20 =$
 $21+21 = 25+22 = 44-20 = 43-23 =$
 $22+20 = 23+22 = 44-22 = 45-30 =$
 $23+20 = 30+20 = 49-20 = 45-25 =$
 $32+10 = 29+20 = 47-30 = 46-23 =$

$$30+21=$$
 $48+10=$ $49+10=$ $38+21=$ $32+20=$ $38+20=$ $30+29=$ $32+24=$ $35+20=$ $40+15=$ $26+33=$ $27+32=$ $46+10=$ $40+20=$ $32+22=$ $26+22=$ $34+20=$ $30+30=$ $35+22=$ $33+22=$ $60-30=$ $54-20=$ $59-38=$ $57-35=$ $60-40=$ $56-46=$ $56-24=$ $54-22=$ $55-40=$ $55-35=$ $59-27=$ $59-26=$ $48-20=$ $52-32=$ $48-26=$ $59-29=$ $48-40=$ $51-21=$ $55-33=$ $59-49=$

Copy and add:

21	12	17	26	10	18	3 8
14	31	20	20	24	20	11
12	24	<u>12</u>	<u>13</u>	$\frac{25}{}$	11	<u>10</u>
21	20	11	13	22	31	21
5	14	26	20	12	15	33
<u>32</u>	3	_2	_6	_5	_3	_5

Copy and subtract:

30	50	40	50	60	50	60
2 0	20	3 0	4 0	20	10	10

7+7+7+7+7+7=	11+11+11+11=
$6 \times 7 =$	$4 \times 11 =$
$7 \times 6 =$	· 11 × 4=
$42 \div 6 =$	44÷ 4=
$42 \div 7 =$	$44 \div 11 =$
6×8=	$7 \times 7 =$
$8 \times 6 =$	$49 \div 7 =$
$48 \div 6 =$	$10 \times 5 =$
48÷8=	$50 \div 10 =$
$6 \times 9 =$	$5 \times 11 =$
$9 \times 6 =$	$11 \times 5 =$
$54 \div 6 =$	$55 \div 5 =$
$54 \div 9 =$	$55 \div 11 =$

Show by dots:

That 60=5 times 12; and 6 times 10.

That $42 \div 7 = 6$; $45 \div 9 = 5$; $48 \div 8 = 6$.

Write all the numbers that can be exactly divided by 4, from 4 to 48.

Write all the numbers from 5 to 60 that can be exactly divided by 5.

Write all the numbers from 3 to 60 that can be exactly divided by 3.

$$20 \div 10 = 10 \div 10 = 90 \div 9 = 40 + 20 = 30 \div 10 = 40 \div 20 = 70 \div 7 = 30 + 20 = 50 \div 10 = 70 \div 10 = 60 \div 6 = 70 + 30 = 80 \div 10 = 80 \div 40 = 80 \div 8 = 50 + 40 = 100 \div 10 = 90 \div 10 = 50 \div 5 = 60 + 30 = 60 - 30 = 4 \times 10 = \frac{1}{8} \text{ of } 80 = \frac{3}{8} \text{ of } 80 = 70 - 50 = 2 \times 20 = \frac{1}{7} \text{ of } 70 = \frac{3}{8} \text{ of } 50 = 90 - 40 = 4 \times 20 = \frac{1}{7} \text{ of } 90 = \frac{3}{8} \text{ of } 90 = 50 - 30 = 5 \times 20 = \frac{1}{8} \text{ of } 60 = \frac{5}{8} $

If there are 4 groups of dots, and 12 dots in each group, how many dots are there in the four groups?

How many quarts are there in $7\frac{1}{2}$ pecks?

How many dimes are there in 60 cents?

How many 5-cent pencils can you buy for 6 dimes?

How many weeks are there in 56 days?

What is $\frac{3}{5}$ of $\frac{55}{5}$ cents? $\frac{4}{5}$ of $\frac{55}{5}$?

How many days are there in June and July together?

Show by dots:

That $\frac{1}{4}$ of $16 = \frac{2}{4}$ of 16; $\frac{1}{4}$ of $24 = \frac{2}{4}$ of 24.

That $\frac{1}{3}$ of $18 = \frac{2}{6}$ of 18; $\frac{1}{2}$ of $24 = \frac{3}{6}$ of 24.

A farmer raised 80 chickens and sold 3 of them. How many had he left?

Walter picked 30 bushels of apples on Monday, 30 on Tuesday, and 20 on Wednesday. How many bushels did he pick in the three days?

One dollar (\$1)=100 cents. How many cents are there in $\frac{1}{2}$ of a dollar?

If you have a half dollar and 2 dimes, how many cents have you?

Francis picked 60 baskets of grapes and sold $\frac{1}{3}$ of them to one man, and $\frac{1}{2}$ of what was left to another man. How many baskets had he left?

Which is greater, $\frac{1}{2}$ of 60, or $\frac{3}{6}$ of 60?

A	\dd:		s	LATE	WOE	R K			
40	39	38	37	36	35	34	33	32	31
1	2	3	4	5	6	7	8	9	10
30	29	2 8	27	26	25	24	23	22	21
11	$\frac{12}{}$	$\frac{13}{}$	$\frac{14}{}$	$\frac{15}{}$	16	<u>17</u>	<u>18</u>	$\frac{19}{}$	<u>20</u>
S	ubtra	act:							
41	41	41	41	41	41	41	41	41	41
1	_2	3	4	_5	_6	7	8	9	<u>10</u>
41	41	41	41	41	41	41	41	41	41
11	$\underline{12}$	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
A	.dd:								
44	43	42	41	40	39	38	37	36	35
_1	_2	_3	4	_5	<u>6</u>	7	_8	9	<u>10</u>
34	33	32	31	30	29	28	27	26	2 5
11	$\frac{12}{}$	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
\mathbf{s}	ubtra	act:							
45	45	45	45	45	45	45	45	45	45
1	_2	_3	_4	_5	<u>6</u>	<u>17</u>	<u>18</u>	$\frac{19}{}$	<u>20</u>

$$49+1=$$
 $44+6=$ $39+11=$ $34+16=$ $48+2=$ $43+7=$ $38+12=$ $33+17=$ $47+3=$ $42+8=$ $37+13=$ $32+18=$ $46+4=$ $41+9=$ $36+14=$ $31+19=$ $45+5=$ $40+10=$ $35+15=$ $30+20=$

Subtract:

50	50	50	50	50	50	50	50	50	50
1	_2	3	<u>4</u>	_5	<u>6</u>	7	_8	9	<u>10</u>
								50	
11	$\underline{12}$	<u>13</u>	<u>14</u>	15	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
									•

Add:

59	5 8	57	56	55	54	5 3	52	51	5 0
1	_2	3	<u>4</u>	_5	<u>6</u>	7	8	9	<u>10</u>
49	4 8	47	46	45	44	43	42	41	40
11	$\frac{12}{}$	<u>13</u>	<u>14</u>	<u>15</u>	$\underline{16}$	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>

Subtract:

60	60	60	60	60	60	60	60	60	60
_1	_2	_3	4	5	<u>6</u>	7	_8	9	<u>10</u>
60	60	60	60	60	60	60	60	60	60
11	<u>12</u>	<u>13</u>	<u>14</u>	$\underline{15}$	16	<u>17</u>	<u>18</u>	<u>19</u>	$\underline{20}$

Add:

ORAL WORK

$$30+27 = 40+17 = 32+20 = 26+20 = 59-40 = 30+25 = 55-30 = 28+10 = 46-30 = 48-30 = 20+37 = 58-54 = 20+10+5=30-10+5=60-20-30 = 30+6+10=40-5+10=50-20+10=12+10+10=10+16+10=60-40+16=30+5+10=50-20-10=40-30+20=$$

$$9+11=$$
 $9+12=$ $9+13=$ $9+14=$
 $19+11=$ $39+12=$ $29+13=$ $19+14=$
 $39+11=$ $19+12=$ $19+13=$ $39+14=$
 $29+11=$ $29+12=$ $39+13=$ $49+14=$
 $49+11=$ $49+12=$ $49+13=$ $29+14=$
 $20-11=$ $21-12=$ $22-13=$ $23-14=$
 $30-11=$ $51-12=$ $42-13=$ $33-14=$
 $50-11=$ $31-12=$ $32-13=$ $53-14=$
 $40-11=$ $41-12=$ $52-13=$ $63-14=$
 $40-11=$ $41-12=$ $52-13=$ $63-14=$
 $60-11=$ $61-12=$ $62-13=$ $43-14=$
 $9+15=$ $9+16=$ $9+17=$ $9+18=$
 $39+15=$ $29+16=$ $29+17=$ $29+18=$
 $19+15=$ $19+16=$ $19+17=$ $19+18=$
 $29+15=$ $39+16=$ $49+17=$ $49+18=$
 $49+15=$ $49+16=$ $39+17=$ $39+18=$
 $49+15=$ $49+16=$ $39+17=$ $39+18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$
 $44-15=$ $45-16=$ $46-17=$ $47-18=$

$$50-11 =$$
 $22-13 =$
 $53-14 =$
 $41-12 =$
 $33-14 =$
 $44-15 =$
 $23-14 =$
 $34-15 =$
 $30-11 =$
 $54-15 =$
 $21-12 =$
 $31-12 =$
 $40-11 =$
 $42-13 =$
 $52-13 =$

Add 17 to: 33; 24; 15; 26; 37; 29. Add 29 to: 11; 17; 22; 18; 16; 23.

Add 19 to: 24; 36; 27; 39; 27; 37; 28; 35. Subtract 19 from: 23; 26; 28; 49; 53; 57;

59; **34**.

Subtract 17 from: 52; 43; 60; 56; 44; 36; 51; 55.

$$7+15=$$
 $7+14=$ $7+13=$ $7+16=$ $37+15=$ $37+14=$ $27+13=$ $17+16=$ $27+15=$ $17+14=$ $17+13=$ $37+16=$ $17+15=$ $27+14=$ $37+13=$ $27+16=$ $22-15=$ $21-14=$ $20-13=$ $23-16=$ $22-15=$ $21-14=$ $20-13=$ $23-16=$ $42-15=$ $31-14=$ $30-13=$ $33-16=$ $42-15=$ $31-14=$ $30-13=$ $33-16=$ $32-15=$ $41-14=$ $50-13=$ $43-16=$

ORAL WORK

How many:

7's in 56?	7's in 42?	9's in 54?
6's in 42?	10's in 70?	12's in 48?
5's in 45?	9's in 90?	5's in 55?
7's in 49?	8's in 56?	9's in 45?
6's in 48?	5's in 50?	10's in 60?

GRAD. ARITH. II. - 6







4 gills (gi.) = 1 pint (pt.)

2 pints = 1 quart (qt.)

4 quarts = 1 gallon (gal.)

How many gills are there in 7 pints?

How many pints are there in 32 gills?

How many pints are there in 10 quarts? in 20 qt.? in 30 qt.?

How many quarts are there in 30 pints?

How many quarts are there in 12 gallons?

How many gallons are there in 32 quarts?

How much will 8 quarts of milk cost at $5\frac{1}{2}$ cents a quart?

How much will 8 quarts and 1 pint of milk cost at 6 cents a quart?

If 7 quarts of milk cost 56 cents, how much will 1 quart cost?

What will be the cost of 5 gallons and 2 quarts of oil at 10 cents a gallon?

Multiply:

23	18	13	26	15	25	19	17	27	29
_ 2	_2	_2	_2	2	_2	2	_2	2	_2
28	14	15	16	16	13	17	12	19	18
_2	3	3	2	3	3	3	3	3	_3

Divide:

$$2)\underline{42}$$
 $2)\underline{36}$ $3)\underline{36}$ $3)\underline{42}$ $2)\underline{48}$ $3)\underline{48}$ $2)\underline{34}$

How many quarts are there in 15 gallons?

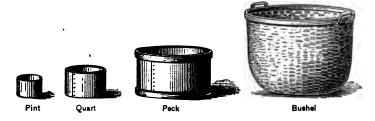
How many half-pint jelly glasses will 14 quarts of jelly fill?

How many quarts are there in 54 pints? in 58 pints?

How many pints are there in 18 quarts? in 28 quarts and 1 pint?

How much will 3 gallons of vinegar cost at 17 cents a gallon?

If 3 gallons of oil cost 51 cents, how much will 1 gallon cost?



2 pints = 1 quart (qt.)

8 quarts=1 peck (pk.)

4 pecks = 1 bushel (bu.)

How many quarts are there in 6 pecks?
What part of a peck is a quart? 4 qt.?
How many pecks are there in 10 bushels?
How many pecks are there in 48 quarts?
How many bushels are there in 24 pecks?
What part of a bushel is 1 peck? 3 pk.?
How many quarts are there in 4½ pecks?
How much will 7 quarts of peaches cost at 6 cents a quart?

If 6 quarts of berries cost 60 cents, how much will 1 quart cost? 1 peck?

A man raised 60 bushels of potatoes and sold all but 10 bushels. How many bushels did he keep?



1 foot (ft.) = 12 inches (in.)

3 feet (ft.) = 1 yard (yd.)

 $16\frac{1}{2} \text{ feet } = 1 \text{ rod (rd.)}$

 $5\frac{1}{2}$ yards = 1 rod

How many inches are there in 4 feet?

How many feet are there in 36 inches?

How many feet are there in 54 in.? $54 \div 12 = 4$, and 6 over.

6 inches are what part of 48 in.? of 60 in.?

How many inches are there in a yard? in $\frac{1}{2}$ a yard?

How many feet are there in 12 yards? in 36 yd.? in 27 yd.?

How many yards are there in 30 feet? in 66 ft.? in 99 ft.?

How many feet are there in $\frac{1}{2}$ a yard? in $\frac{1}{3}$ of a yard?

How many inches are there in $\frac{1}{2}$ a foot? in $\frac{1}{6}$ of a foot?

- One dollar (\$1) equals 100 cents (\$\epsilon).
- There are 10 dimes in \$1. How many dimes are there in \$4? in \$6?
- How many cents are there in 6 dimes? in $3\frac{1}{2}$ dimes?
- Johnson had 52% and spent 25% to see a game of baseball. How many cents had he left?
- A street is 51 feet wide. How many yards wide is it?
- James picked 33 bushels of apples one day, and John picked only \(\frac{1}{3} \) as many bushels. How many bushels did John pick? How many more bushels did James pick than John?
- A miller bought 41 bushels of corn from one man, and 13 bushels from another. If he sells 15 bushels, how many bushels will he have left?
- I rent one house for \$25 a month, and another for \$18 a month. How much rent do I get each month from both houses?

 $53 \div 7 = 7$, and 4 remainder.

 $55 \div 8 = -$, and - remainder.

 $57 \div 9 = -$, and -- remainder.

 $46 \div 10 =$ —, and — remainder.

What is $\frac{2}{3}$ of 33 bu.?

 $\frac{1}{3}$ of 33 bu. = 11 bu., and $\frac{2}{3}$ of 33 bu. = 2 × 11 bu., or 22 bu.

What is:

% of 36 yd.? % of 51 \(\epsilon \)?

of 39 rd.? # of 54 cows?

²/₃ of \$45? ²/₃ of 57 qt.?

$$4 \times 5 = 5 \times 4 = 5 \times 12 = 7 \times 3 =$$

$$4 \times 6 = 5 \times 5 = 6 \times 4 = 7 \times 4 =$$

$$4 \times 7 = 5 \times 6 = 6 \times 5 = 7 \times 5 =$$

$$4 \times 8 = 5 \times 7 = 6 \times 6 = 7 \times 6 =$$

$$4 \times 9 = 5 \times 8 = 6 \times 7 = 7 \times 7 =$$

$$4 \times 10 = 5 \times 9 = 6 \times 8 = 7 \times 8 =$$

$$4 \times 11 = 5 \times 10 = 6 \times 9 = 8 \times 3 =$$

$$4 \times 11 = 5 \times 10 = 6 \times 9 = 6 \times 3 = 4 \times 12 = 5 \times 11 = 6 \times 10 = 8 \times 4 = 6 \times 10 = 6 \times$$

$$30+31 = 19+42 = 62-14 = 76-17 = 41+20 = 65+15 = 67-29 = 68-39 = 35+26 = 28+47 = 64-35 = 65-46 = 38+22 = 37+28 = 72-44 = 74-28 = 47+15 = 52+19 = 78-39 = 80-47 = 38+26 = 43+36 = 67-48 = 70-32 = 35+34 = 53+18 = 61-57 = 77-69 = 43+20 = 48+24 = 74-36 = 68-29 = 51+20 = 39+39 = 76-37 = 63-45 = 56+18 = 38+39 = 65-39 = 72-65 = 68$$

57+10= $34+20=$ $38+30=$ $40+30=$	47 + 20 = $54 + 20 =$ $35 + 40 =$ $22 + 50 =$	39+40 = 26+40 = 40+37 = 20+51 =	42+20 = 17+50 = 20+57 = 33+40 =
50+30= $39+20=$	46 + 20 = $48 + 30 =$	16 + 60 = 27 + 50 =	64+10=59+20=
65-20= $75-10=$ $80-10=$ $80-30=$	70-10= $70-60=$ $70-30=$ $64-20=$	78-20 = 69-20 = 76-30 = 72-10 = 69	71-30 = 72-50 = 79-60 = 78-7

A	dd:			/	_		•
32	24	22	16	26	39	13	32
21	19	18	19	13	27	25	24
<u>19</u>	<u>35</u>	<u>27</u>	<u>38</u>	$\frac{25}{}$	<u>10</u>	<u>29</u>	$\frac{19}{}$
14	34	20	19	12	13	14	15
14	10	16	18	13	14	15	16
14	12	15	17	14	15	16	17
32	18	14	16	15	16	17	18
-							

Write all the numbers that end with 2, from 2 to 72.

Write all the numbers that end with 4, from 4 to 74; all that end with 7, from 7 to 77.

Add 27 to: 39; 26; 53; 48; 37; 25. Add 38 to: 17; 24; 36; 29; 38; 35.

Subtract 29 from: 32; 43; 67; 78; 80.

Add by 2's from 1 to 51; from 4 to 60.

Add by 3's from 3 to 78; from 5 to 77.

Add by 5's from 5 to 80.

Subtract by 2's from 51 to 1; from 60 to 4.

Subtract by 3's from 78 to 3; from 77 to 5.

Subtract by 5's from 80 to 5.

Sight exercise:

22 and 8 are —			33 and	7	are	
44 and 7 are —			55 and	9	are	
58 and 10 are —			33 and	11	are	<u>·</u>
36 and 11 are —			29 and	30	are	
64 and 8 are —			74 and	6	are	
32 and 9 are —			56 and	20	are	
8 times 9 are —			7 times	8	are	
9 times 7 are —			12 times	6	are	
6 times 11 are —			5 times	12	are	
7 times 7 are —	•		8 times	8	are	
00 10		•				

$$80 \div 10 =$$
 $72 \div 9 =$
 $63 \div 9 =$
 $54 \div 6 =$
 $56 \div 7 =$
 $72 \div 8 =$
 $\frac{1}{9}$ of $54 =$
 $\frac{1}{8}$ of $72 =$
 $\frac{1}{7}$ of $56 =$
 $\frac{1}{6}$ of $48 =$
 $\frac{1}{4}$ of $44 =$
 $\frac{1}{7}$ of $60 =$

$$80+ 1=81$$
, eighty-one $90+ 1=91$
 $80+ 2=82$, eighty-two $90+ 2=92$
 $80+ 3=83$, eighty-three $90+ 3=93$
 $80+ 4=84$, eighty-four $90+ 4=94$
 $80+ 5=85$, eighty-five $90+ 5=95$
 $80+ 6=86$, eighty-six $90+ 6=96$
 $80+ 7=87$, eighty-seven $90+ 7=97$
 $80+ 8=88$, eighty-eight $90+ 8=98$
 $80+ 9=89$, eighty-nine $90+ 9=99$
 $80+10=90$, ninety $90+10=100$

$$35+46 = 49+49 = 87-69 = 100-69 = 27+34 = 48+49 = 86-77 = 100-43 = 59+26 = 49+46 = 85-68 = 100-72 = 45+39 = 41+49 = 84-55 = 100-37 = 26+74 = 47+53 = 93-64 = 100-66 = 65+35 = 63+36 = 94-56 = 100-78 = 75+25 = 43+27 = 92-79 = 100-84 = 74+26 = 46+54 = 95-87 = 100-85 = 79+16 = 23+68 = 99-64 = 100-92 = 69+25 = 39+62 = 98-85 = 100-37 = 49+48 = 57+36 = 97-56 = 100-59 = 69$$

Ł

$$9+9+9+9+9+9+9+9+9=$$
 $9\times 9=$
 $81\div 9=$
 $12+12+12+12+12+12=$
 $7\times 12=$
 $84\div 7=$
 $11+11+11+11+11+11+11+11+11=$
 $8\times 11=$
 $88\div 8=$
 $10+10+10+10+10+10+10+10+10+10=$
 $9\times 10=$
 $90\div 9=$
 $12+12+12+12+12+12+12+12=$
 $8\times 12=$
 $96\div 8=$
 $11+11+11+11+11+11+11+11+11=$
 $9\times 11=$
 $99\div 9=$
 $10+10+10+10+10+10+10+10+10+10=$
 $10\times 10=$
 $100\div 10=$
 $21+21+21=$
 $3\times 21=$
 $31+31=$
 $2\times 31=$
 $22+22+22=$
 $3\times 22=$
 $32+32=$
 $23+23+23=$
 $3\times 23=$
 $33+33=$
 $2\times 33=$
 $24+24+24=$
 $3\times 24=$
 $34+34=$
 $2\times 34=$
 $25+25+25=$
 $3\times 25=$
 $35+35=$
 $2\times 35=$
 $26+26+26=$
 $3\times 26=$
 $36+36=$
 $2\times 36=$
 $27+27+27=$
 $3\times 27=$
 $37+37=$
 $2\times 37=$
 $28+28+28=$
 $3\times 28=$
 $38+38=$
 $2\times 38=$
 $29+29+29=$
 $3\times 29=$
 $39+39=$
 $2\times 39=$

ORAL WORK

$8 \times 7 =$	$6 \times 12 =$	$3 \times 12, +20 =$
$9 \times 8 =$	$\frac{1}{9}$ of $45 =$	$7 \times 8, +10 =$
$7 \times 12 =$	$\frac{1}{8}$ of $56 =$	$9 \times 8, \div 12 =$
40÷ 8=	$\frac{1}{3}$ of $33 =$	$7 \times 9, \div 3 =$
56÷ 7=	$\frac{1}{4}$ of $48 =$	$8 \times 10, \div 20 =$
36+7-8=	$42 \div 7, +18 =$	32 = 24 +
55+7-9=	$54 \div 6, +24 =$	39 = 29 +
56+9-7=	$32 \div 8, +72 =$	68 = 38 +
76+6-4=	$44 \div 2, +11 =$	75 = 50 +

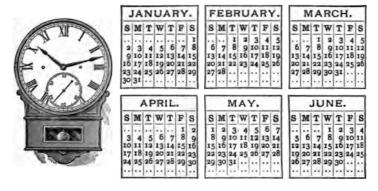
GRAD. ARITH. II. - 7

- doz. = dozen; oz. = ounce, ounces;
 - lb. = pound, pounds; \(\neq = \text{cent}, \text{cents}; \)
 - pt. = pint, pints; qt. = quart, quarts;
- gal. = gallon, gallons; bu. = bushel, bushels.
- How much will $\frac{1}{3}$ of 3 doz. eggs cost at 3/ apiece?
- At 14¢ a pound how much will 3½ lb. of cheese cost?
- If 2 gallons of molasses cost 80%, how much will 1 qt. cost?
- How much will 9 lb. of lard cost at 8¢ a pound?
- How many melons will it take to give to each of 12 boys ‡ of a melon?
- An oil can has in it $2\frac{1}{2}$ gal. of oil. If 3 pt. are taken out of it, how many pints will be left in the can?
- If a barrel holds $2\frac{1}{2}$ bu., how many barrels will hold 5 bu.?
- A man earns \$45 a month. He pays \$10 a month for rent, and \$20 for other expenses. How much can he save a month?

$83 \div 8 = 10$, and 3 remainder.
$87 \div 12 = $ —, and — remainder.
$85 \div 7 =$, and $$ remainder.
$84 \div 9 =$, and $$ remainder.
$86 \div 10 =$, and $$ remainder.
$91 \div 12 =$, and $$ remainder.
$93 \div 9 =$, and $$ remainder.
$98 \div 10 =$, and $$ remainder.
$100 \div 8 =$, and $$ remainder.
100 ÷ 0 =, and remainder.
$6 \times 13 = 64 \div 16 = \frac{1}{6} \text{ of } 90 = 90 \div 8 =$
$6 \times 16 = 76 \div 19 = \frac{1}{3} \text{ of } 57 = 100 \div 4 = \frac{1}{3} \times 100 = \frac{1}{3} \times $
$6 \times 15 = 52 \div 13 = 95 \div 19 = 100 \div 9 =$
$7 \times 13 = 72 \div 18 = 90 \div 4 = 100 \div 6 =$
$7 \times 14 = 98 \div 7 = 90 \div 18 = 46 + 39 =$
$4 \times 17 = 90 \div 6 = 52 \div 13 = 37 + 58 =$
$4 \times 18 = 91 \div 7 = 39 \div 13 = 67 + 28 =$
$4 \times 19 = 96 \div 6 = 63 \div 21 = 95 - 67 =$
$4 \times 16 = 76 \div 6 = 75 \div 15 = 75 - 58 =$
Add 29 to: 18; 48; 38; 58; 37; 57; 27.
Add 36 to: 29; 49; 19; 59; 48; 38; 18.
Subtract 37 from: 55; 65; 85; 35; 56; 76.
Subtract 38 from: 47; 97; 67; 57; 76; 86.

LESSON 96

CALENDAR FOR 1898



ORAL WORK

60 seconds (sec.) = 1 minute (min.) 60 minutes = 1 hour (hr.)

24 hours = 1 day (da.)

7 days = 1 week (wk.)

4 weeks = 1 month (mo.)

12 months = 1 year (yr.)

How many days are there in 2 weeks?

How many weeks are there in 28 days?

How many hours are there in 2 days?

How many months are there in 3 years?

How many years are there in 60 months?

How many minutes are there in 1 hour? in

 $\frac{1}{2}$ an hour? in $\frac{1}{3}$ of an hour?

How many seconds are there in 1 minute?

- If $\frac{1}{2}$ a pound of ginger is worth 9%, how much is 1 lb. worth?
- How much will 2 barrels of apples cost at $\$5\frac{1}{2}$ a barrel? $\$5\frac{1}{2} + \$5\frac{1}{2} =$
- When potatoes are selling at 80% a bushel, how much is 3 of a bushel worth?
- When 96¢ are paid for 3 doz. eggs, what is the price per dozen?
- There are 16 oz. in 1 lb. How many ounces are there in 5 lb.? in $5\frac{1}{2}$ lb.?
- How many pounds are there in 64 oz.? in 96 oz.?
- How many pint bottles can be filled from a 10-gallon keg of cider?
- When potatoes are worth half a dollar (\$\frac{1}{2}\$) per bushel, how many bushels can be bought for \$25?
- How many cents will 1 dozen lemons cost, if 10 lemons cost 2 dimes?
- If a man travels 6 miles an hour on his bicycle, how long will it take him to travel 96 miles?

- If a man has 14 five-dollar bills, 2 two-dollar bills, and 1 one-dollar bill, how much money has he?
- There are $16\frac{1}{2}$ feet in 1 rd. How many feet are there in 2 rd.? $16\frac{1}{2} + 16\frac{1}{2} =$
- How many feet are there in 24 ft. 6 in. and 46 ft. 6 in.?
- How many inches are there in a yard? in 2 yd.?
- How many feet are there in $\frac{1}{2}$ of a yard?
- How many nickels are there in \$1? in \$2? in \$5?
- There are $5\frac{1}{2}$ yd. in 1 rd. How many rods are there in 11 yd.?
- How many gallons of root beer will fill 8 doz. half-pint bottles?
- How many feet are there in $5\frac{1}{2}$ yd.?
- How many yards are there in 11 ft.?
- A schoolroom is 2 rd. long. How many feet long is it? How many rods equal 66 ft.?
- How much will $\frac{1}{2}$ of a bushel of beans cost at 6/6 a quart?

- 47 ft. = —— yd., and —— ft. 51 ft. = —— yd.
- How much will it cost to build 2 rd. of fenc at 2# a ft.?
- A man earns \$20 a week. How many week will it take him to earn \$100?
- How much will 50 bu. of potatoes cost a half a dollar a bushel?
- How many times can you take 10 cents from a dollar? 5 cents? 4 cents?
- If you have 36 apples, how many more apple will you need to give to each of 18 boy 5 apples?
- How many yards of cloth at \$3 a yard, ca you buy for \$33?
- If 4 bags hold 9 bu., how many bags will 1 needed to hold 18 bu.? 36 bu.?
- A tailor paid \$96 for 6 pieces of cloth. Ho much did he pay for each piece?
- A miller bought 37 bu. of wheat, which we 8 bu. more than he had on hand. Ho many bushels had he after he bought 3 bu.?

REVIEW WORK

- A man bought three suits of clothes, one for each of his three sons. For the first suit he paid \$17; for the second \$13; for the third \$11. He gave the clerk 4 tendollar bills, and 1 five-dollar bill. How much change should he get?
- A clerk earns \$2 a day six days a week, and spends \$8 a week. How many months will it take him to save \$56?
- Mr. Wilson earns \$72 a month and pays † of it for board. How much does he pay for board?
- If a man builds 30 rd. of fence in 5 da., how many rods can he build in 1 da.? How many can he build in 10 da.?
- John has 32%. How many more cents does he need to buy a pair of skates worth 91%?
- If a man and his son earn \$75 by working 15 days, how much can they earn at the same rate in 25 days?

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